

## Syllabus

**PHILOSOPHY OF SCIENCE: CORE CONTEMPORARY ISSUES**

<u>Lecturer and lab instructor:</u>	Maria Kronfeldner
<u>No. of Credits:</u>	2
<u>Status:</u>	Elective, MA-level (required for Science Studies Certificate)
<u>Teaching format:</u>	2-hour/week (lecture, seminar)
<u>Area:</u>	Metaphysics and Epistemology
<u>Time:</u>	Tuesday, 13:30-15:10

**Description**

The way science works raises deep and pressing philosophical questions. Is there a way to demarcate science from non-science? How is scientific knowledge made reliable? Is it giving us access to reality or is it merely a tool, e.g. for successful prediction or explanation? The so-called “analytic” project (following Barker & Kitcher’s terminology) within philosophy of science focused on these and similar (by now) classic issues: the demarcation of science, confirmation, realism, the nature of theories, the relations among theories, laws of nature and explanation. During the second half of the 20<sup>th</sup> century, the contingencies of history of science and the intermingling of science and society were increasingly taken seriously. Issues addressed included: what follows philosophically from looking at the history of science, in particular the study of scientific revolutions? If social values influence sciences, is that legitimate? In which sense, if any, is science itself social and political, and therefore normative?

Part I of the course will introduce the classic issues and then focus on the more contemporary issues regarding history, value-ladenness and the social structure of science. Part II and III will focus on the kinds of knowledge sciences produce, by discussing specific epistemic goals of scientists (i.e., explanation, modeling and prediction, and classification) and specific epistemic values in the background of scientific endeavors (i.e., unity, simplicity and objectivity). In a final session, we will address how best to do philosophy of science as part of science studies.

By taking a philosophical stance, students will learn in this course how to think about sciences in a philosophical manner – that is, about science in general, but also regarding their respective own disciplines. They shall understand how particular sciences function epistemically and how they fit into their broader academic and social context.

**Learning goals, format, deliverables, requirements, and grading**

*Learning goals:* Students will

- get an introduction to the philosophy of science that connects philosophy of science with science studies more generally,
- learn to understand and appreciate the nature of philosophical problems,
- critically look at their discipline’s goals, practices and kinds of knowledge produced thereby.

*Format and deliverables:* Part I will have lectures and discussions, based on Barker and Kitcher's (2013) introduction and will close with a short test. Part II and III will concentrate on short primary readings and further material from the other readings. These parts will consist of short student presentations and intensive discussions.

*Requirements:* Students can join even if they have not previously done a basic introduction to philosophy of science. Students are required to prepare the required reading for class, to regularly and actively participate in class, to take the short test after Part I and to present and write about a topic of their choice (10 min presentation, 1000 word essay).

*Assessment:* Grades will be based on the results of the mid-term test (50%), end-of-term 1000 word essay (40%), and in class participation (10%).

## Overview

### I. Major issues in philosophy of science

1. Introduction (B&K, Ch. 1)
2. The analytic project (B&K, Ch. 2)
3. The view from the sciences (B&K, Ch. 3)
4. Science, history, and society (B&K, Ch. 4)
5. Critical voices (B&K, Ch. 5)
6. Science, values, and politics (B&K, Ch. 6)
7. MID-TERM TEST

### II. Epistemic goals of science

8. Explanation
9. Classification

### III. Influence of epistemic values

10. Unity
11. Objectivity

### IV. Understanding science

12. How to integrate philosophy with history and social sciences

## Readings

**Introduction** to the philosophy of science:

- [B&K] Barker, G., & Kitcher, P. 2013. *Philosophy of science: A new introduction*. Oxford: Oxford University Press. [required reading for Part I]

### **Classical and contemporary readings**

- Biagioli, M. 1999. *The science studies reader*. New York: Routledge
- Bird, A. & J. Ladyman. 2013. *Arguing about Science*. London; New York: Routledge.
- Curd, M. & J. A Cover. 1998. *Philosophy of Science: The Central Issues*. New York: W.W. Norton & Co.
- Psillos, S., & M.Curd. 2008. *The Routledge Companion to Philosophy of Science*. London ; New York: Routledge.

As **background reference** material students shall use the following:

- Psillos, S. 2007. *Philosophy of Science A-Z*. Edinburgh: Edinburgh University Press.

Further references will be provided in class, related to specific topics.

## GENERAL RULES: PARTICIPATION, PRESENTATIONS, WRITTEN ASSIGNMENTS

Maria Kronfeldner

Interaction in class should be based on mutual reliability and mutual respect, a fair and open intellectual exchange.

### Participation

- Students are required to **attend classes regularly**.
- Students should **participate actively in seminar discussions** and have to **prepare the required reading** for the course.
- They should **be able to ask questions** and **make comments on that reading** and **respond to the presentations of other student**.

### Presentations should

- include the **reconstruction of the main arguments of the text** and **interpretative remarks** or **questions for discussion**.
- If asked, students also have to **exhibit research skills** (e.g. referring to further literature regarding the topic)
- Students are expected to **prepare and distribute a maximum two page long handout** that they distribute before their presentation. A multimedia presentation (e.g. powerpoint) is possible but is not replacing the handout.

### Written assignments

Format of the written assignments varies. See course syllabus on this. If a term paper is assigned as an argumentative piece, this can be:

- either a careful **critical reconstruction** of a particular and important argument for some position,
- a **comparison** between competing arguments about alternative solutions to a problem,
- or a **defense of some particular position/argument** against some relevant criticism.

In all these cases, your own argumentation, your critical voice, should be a significant part of the paper.

I will **evaluate assignments** according to the following criteria (if applicable):

Specific criteria	1 Yes	2	3	4	5 No
Does the paper have a precise, meaningful, independent and relevant question, structure and upshot?					
Are the arguments precise and coherent?					
Are important concepts explicated?					
Does the paper critically engage with the literature (e.g. anticipating counterarguments, developing an original argumentation)?					
Is there an indication for adequate comprehension of the relevant literature?					
Is the paper well-referenced (mentioning relevant references) and does it conform to the standards of academic writing?					